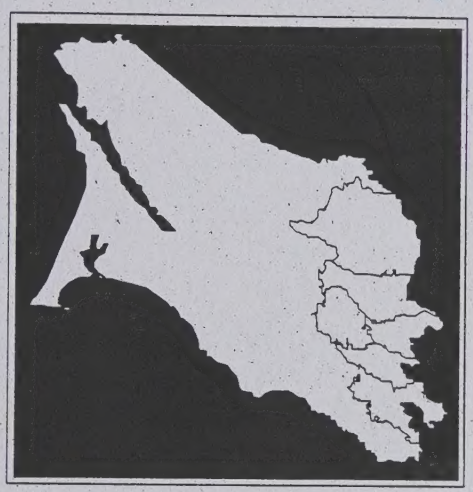
The Marin Countywide Plan

Transportation Element Technical Report #5
Bicycle Transportation in Marin County



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BICYCLE PLAN

EXECUTIVE SUMMARY

The bicycle plan, originally adopted in 1975 and revised in 1983, has been integrated into the Transportation Element of the Countywide Plan. This technical report contains background information which supports the policies in the Transportation Element and provides guidelines for bicycle transportation planning.

The 1974 Bikeways Policy document emphasized the need for "safe accommodation for bicycling in all public streets and roads." Policies included requirements for new road and repair projects to be designed to accommodate bicycles, integration of bicycle planning into transportation planning, and creation of uniform standards for design and construction of bicycle facilities. Since 1974 the Department of Parks and Open Space has been responsible for planning bicycle routes and trails that have a recreational purpose. The Department of Public Works plans bikeways that have a transportation purpose.

The primary source of funding for bicycle facilities is the Transportation Development Act Article 3. Marin County receives between $75,000 and $100,000 per year from this source. The funds are channeled through the Metropolitan Transportation Commission which reviews project applications for conformity to the regional bike plan. A new source of funds is Proposition 166, a multipurpose alternative transportation bill. Approximately $4 million will be available annually from this source for the next five years. A jurisdiction may receive up to $1 million for specific projects.

Marin County has integrated bicycle transportation into its transportation planning in an era of increasing traffic congestion and concern for air pollution and gasoline consumption, the bicycle provides a viable alternate mode of transportation. Bicycle use reduces traffic congestion (to the extent that the trips would have been made in an automobile), and the use is pollution free and consumes no gasoline. Along with walking, it is the most ecologically sensitive form of travel.

The County will encourage bicycle use by providing bikeways and "bicycle-friendly" streets which connect residential neighborhoods, job sites, shopping centers, schools and recreation facilities. The County could encourage employers and developers to provide bicycle storage facilities at their sites. The County could also provide storage facilities at transit stops.

In designing a countywide network of bicycle facilities the County considers seven criteria: trip demand, safety, continuity (connections between different parts of the county), efficiency, user support, recreational value, and funding feasibility. The primary means of integrating bicycles into the transportation system are continued construction of bikeways and inclusion of bicycles in a transportation system management program. The County will create a Bicycle Policy Map which will provide guidance for allocating funds and setting priorities.

I. INTRODUCTION

The current bicycle plan, originally adopted in 1975 and revised in 1983, has been integrated into the Transportation Element of the Countywide Plan. The Transportation Element carries forward some policies from the previous plans and adds new policies. The new policies reflect the desire of the County to integrate bicycles into the transportation network as a viable alternate form of travel. This technical report contains background information which support the policies in the Transportation Element and provides guidelines for bicycle transportation planning.

As documented in previous bikeways plans, there is a need to coordinate the activities of various agencies involved in bikeway planning and construction. These agencies include the Marin County Departments of Public Works, Parks and Open Space, and Planning, the National Park Service, the Golden Gate Bridge, Highway and Transportation District, and the California State Departments of Transportation and Parks and Recreation. The main purpose of this technical report is to provide policy and implementation guidelines for all of these agencies.

II. POLICY HISTORY

In 1974, the Marin County Board of Supervisors adopted a document entitled "A Bikeway Policy for Marin County" in which the Board emphasized the need for "safe accommodation for bicycling in all public streets and roads." The policies called for the County to:

1. Require new road construction and repair projects to be designed to safely accommodate bicycles as well as motor vehicles;

2. Integrate bicycle planning into transportation planning and construction;

3. Provide recreational bikeways along scenic routes and connections between recreation areas;

4. Develop uniform standards for bikeway design, construction, signing and safety devices;

5. Support bicycle traffic safety education and skills training programs; and,

6. Support statewide and local legislative efforts to establish bicycle safety rules, and support enforcement and education programs which may be necessary.

Since 1974 the Department of Parks and Open Space has been responsible for planning bicycle routes and trails that have a recreational purpose. The Department of Public Works plans bikeways that have a transportation purpose.

At the State level, the Department of Transportation (Caltrans) has provided research, guidance and funding for bicycle-related projects. The design standards have been incorporated into the California Highway Design Manual. Funding is provided through the Transportation Development Act Article 3 (TDA), the Bicycle Lane Account (BLA), and Proposition 116.

In September, 1990, the Department of Transportation established an Office of Bikeway Facilities. This office is responsible for managing bicycle-related activities for Caltrans. Activities include making the Pacific Coast Bicentennial Route an official State bicycle route, assisting the California Transportation Commission in designing guidelines for spending $20 million of Proposition 116 funds on bicycle commuter facilities; managing the Bicycle Lane Account; advocating on behalf of cyclists; and coordinating bicycle transportation activities with state agencies, local governments, special districts, and cyclists.

Proposition 116, a multipurpose alternative transportation bill, provides $20 million ($4 million annually for five years) for bicycle commuter facilities. Projects are submitted to the Office of Bikeway Facilities for a competitive ranking. Any jurisdiction may receive up to $1 million for high ranking projects. Projects must meet California Transportation Commission guidelines, published in May of 1991. The deadline for project submittals is August/September 1991 and a final decision will be reached in December of 1991.

At the regional level, the Metropolitan Transportation Commission created a Regional Bike Plan in 1982 which is incorporated into the Regional Transportation Plan (this plan sets priorities and funding guidelines for transportation projects in the nine-county Bay Area). Not only are bicycles included in regional transportation planning, they are given priority status. The Plan states that "priority shall be given to projects or programs that reduce dependence on automobile travel and conserve energy, including projects that enhance or complement pedestrian, bicycle, car/vanpool and transit travel." MTC's Regional Bike Plan offers these guidelines for MTC decisions:

1. Allocate TDA Article 3 funds to projects that significantly increase the safety and convenience of bicycle or pedestrian travel to activity center destinations;

2. Encourage local bicycle planning and provide user groups access to the planning and funding process;

3. Integrate bicycle planning into MTC's regular planning activities; and,

4. Encourage local employers and local jurisdictions to consider bicycling as a commute mode and to develop facilities and incentives for bicyclists.

Funding from Transportation Development Act Article 3 is channeled through MTC. Marin County has received between $75,000 and $100,000 per year during the last eight years, depending on the type of projects submitted. Since 1984, the Bikeways Subcommittee of the Parks and Cultural Commission has initiated project proposals and reviewed projects submitted by Public Works Directors of each local government. The Board of Supervisors has final approval before submitting the list to MTC.

The Metropolitan Transportation Commission reviews each county's request for consistency with the Regional Transportation Plan and eligibility standards. MTC requires that counties submit a three-year list of projects to provide a planning context for review of the first year list of projects. The project eligibility standards are as follows:

1. Submissions must be capital projects;

2. Only public agencies may submit requests;

3. Each project must have been approved by the County Board of Supervisors;

4. Projects must meet the minimum safety design criteria of Caltrans' Highway Design Manual;

5. Environmental review documents as required by the California Environmental Quality Act must be reviewed and approved by MTC;

6. Projects must be ready for implementation within one year of allocation of funds;

7. All funds received require a fiscal audit by an independent contractor;

8. The process for selecting projects at the local level must include a users' advisory committee review and a public hearing.

Each level of government has acknowledged that the bicycle is a viable form of transportation. Each has policies which encourage bicycle use to some degree. In each case it is the degree of commitment that determines the success of promoting bicycling as an alternate form of transportation. The Bicycle Plan outlines the advantages of bicycle travel and the County's policies and programs to make bicycling viable.

III. THE CASE FOR BICYCLE TRANSPORTATION

In an era of increasing traffic congestion and concern for air pollution and gasoline consumption, the bicycle provides a viable alternate mode of transportation. Bicycle use reduces traffic congestion (to the extent that the trips would have been made in an automobile), and the use is pollution free and consumes no gasoline. Along with walking, it is the most ecologically responsible form of travel.

For shorter trips, those of five miles or less, the bicycle is a convenient mode and provides door-to-door service. Travel time on the bicycle may be longer than that of the automobile, but, if parking space is scarce, time otherwise spent looking for a parking space would be saved. Because the automobile consumes the most gasoline (per minute) and pollutes the air worst during start-up and warm-up, bicycle use would reduce gasoline consumption and could improve air quality in cities where short trips predominate. To the extent that bicycles remove automobiles from the road, they contribute to reducing noise levels in urban areas, although this reduction would be modest.

At a time when physical fitness is becoming a major concern, the bicycle offers an opportunity: bicycling is a good source of exercise. For the trips most likely taken by bicycle, the time spent will improve a person's cardiovascular system, lower blood pressure, burn calories, and reduce stress by providing an outlet for tension. Cycling to work will get commuters' blood flowing and increase wakefulness. Riding a bicycle home from work will burn off the day's tension and refresh the body for the evening.

Advances in bicycle design and technology are opening cycling to a wider group of participants. Strong lightweight materials, ergonomic seating, and improved gear

ratios are making cycling possible to more elderly people and the less physically fit. The riding range of cyclists is also increasing due to improvements in technology, even in a hilly county such as Marin. It is likely that the number of cyclists will increase as more people discover that they can power a bicycle.

Compared to the operating cost of an automobile, the bicycle is very economical. With regular use, the bicycle would pay for itself in automobile cost savings and reduce automobile operating expenses over the long run. If sufficient numbers of people rode bicycles, the costs associated with accommodating the automobile -- road expansion, improvements, and parking space -- would be lower. Bicycle use would also conserve some urban space that would otherwise be taken up with roads and parking spaces. This space could be allocated either to bicycles to make them an even more attractive way to travel or to other land uses.

IV. ENCOURAGING BICYCLE USE

In order to realize the advantages of cycling to both individuals and the community, it is necessary to understand the needs and travel behavior of cyclists. The City of Palo Alto, whose bicycle riding residents have been repeatedly studied, states that safety, security, and convenience are the top three priorities for cyclists. Bicycle programs of cities that try to promote bicycle use emphasize that streets designated as bikeways need to be made as safe as possible, that secure bicycle storage facilities need to be provided and that bikeways should be planned according to the most convenient access to destinations. Local governments that wish to promote bicycle use should factor safety, security, and convenience into their transportation planning.

Using these three priorities as guidelines, there are several ways to encourage bicycle use. Schools can promote bicycle use among students and teachers who live nearby. They can do this by providing secure storage areas and working with local government to ensure that there are safe, unobstructed routes for cyclists to take to school. Bicycle promotion and safety education can be made part of the school curriculum.

Providing bikeways and "bicycle-friendly" streets is critical to encouraging bicycle use. A network should be designed to allow bicycle access to job sites, shopping centers, schools, recreation facilities, and government offices. The network would be a combination of streets and bikeways that link all areas and provide safe, convenient bicycle access.

Local governments that use Transportation System Management programs at employment centers could promote bicycle use as well as carpooling and transit use. To improve the effectiveness of bicycle promotion programs, employers and owners could be offered incentives such as reduced off-street parking requirements or an easing

of other restrictions placed upon them. Simple things such as providing secure storage for bicycles plus facilities for the riders (e.g. lockers, showers) would encourage bicycle use. Researchers in Palo Alto have even suggested that employees be paid to ride bicycles in an effort to reduce automobile congestion near major job centers.

Transit service providers could make riding a bicycle to transit stops feasible by a "carry-on" policy. For example, BART allows cyclists with a permit to carry their bikes on the last car of a train. In some cities buses have bike racks attached. Bicycle storage facilities should be provided at transit stops.

Local government may encourage bicycle use through its development policies and subdivision standards. Developers could be required to accommodate bicycle use as well as automobile use within and near their projects. This includes providing bikeways (or land for the local government to build bikeways), secure storage facilities for bikes, and facilities for cyclists such as the aforementioned lockers. In exchange, local government could reduce parking requirements or ease restrictions of the size or number of buildings (in congested areas building size or number restrictions are often used as an indirect means of reducing travel demand to the site).

Large development projects, such as industrial parks or big residential subdivisions, could be planned to allow easy bicycle access within the project and have linkages to bikeways nearby. Existing developments could be designated assessment districts to raise revenue for bikeway improvements. For example, Palo Alto has established an assessment district at Stanford Industrial Park to create bicycle and pedestrian paths.

The bicycle network linking different areas of the county should consist of a combination of streets and bikeways. Factors such as the quality of existing streets, funding and right-of-way for bikeway construction, and travel demand to various locations determine which type of facility best meets the needs of both bicyclist and motorists. Listed below are five types of bikeways.

V. TYPES OF BIKEWAYS

There are five classes of bikeways. Three are designated by Roman numerals, although the classes lack hierarchical significance and each class has its appropriate application.

Class I Bike Path: A paved path physically separated from the road. Caltrans design standards for Class I bike paths call for a minimum of eight feet paved path separated from motor vehicles by space or a physical barrier. It is identified by guide signs and may also have pavement markings.

Generally, bike paths should be used to connect destinations not served by streets or highways or where wide rights-of-way exist. Bike paths should offer opportunities not provided by the road system. They can either provide a recreational opportunity, or in some instances, serve as direct high speed commute routes. The most common locations are along rivers, ocean fronts, canals, utility rights-of-way, abandoned railroad rights-of-way, within college campuses, or within and between parks. In some situations, such facilities can be provided as part of new planned developments. Another common application of Class I paths is to bridge gaps to bicycle travel caused by construction of freeways, or because of the existence of natural barriers: rivers, mountains, etc.

Class II Bike Lane: A portion of a street delineated by a stripe and (usually) painted pavement signs such as "BIKES ONLY." Class II facilities allow travel one way only in the direction of traffic. Class II lanes should be five feet wide and clearly identified for bicycle use only.

Bike lanes are established along streets in corridors where there is significant bicycle demand, and where there are distinct needs that can be served by them. The purpose should be to improve conditions for bicyclists in the corridors. Bike lanes are intended to delineate the rights-of-way assigned to bicyclists and motorists and to provide for more predictable movements by each. But a more important reason for constructing bike lanes is to better accommodate bicycles through corridors where insufficient room exists for safe cycling on existing streets. This can be accomplished by reducing the number of lanes or prohibiting parking on given streets in order to delineate bike lanes. In addition, other things can be done on bike lane streets to improve the situation for bicyclists that might not be possible on all streets: improvements to the surface, frequent street sweeping, special signal facilities, etc. Generally, stripes alone will not measurably enhance bicycling.

Class III Bike Route: Bicycles use the same lanes as motor vehicles and the roads are posted with signs identifying the road as a bicycle route. Bike routes serve to provide continuity to other bicycle facilities or designate the preferred travel route through congested areas. As with bike lanes, designation of bike routes should indicate to cyclists that there are particular advantages to using these routes as compared with alternate routes. This means that responsible agencies have taken actions to assure that these routes are suitable for bicycles and will be maintained in a manner consistent with the needs of bicyclists.

Combined Use Trails: Double-track trails (greater than or equal to eight feet wide) which are wide enough to safely accommodate hikers, equestrians, and mountain bikes with the cooperation of the users. Almost all combined use trails are on State and Federal parklands, Marin Municipal Water District watersheds, and Marin County

Open Space District properties. These trails generally do not exceed moderately steep gradients, offer substantial overhead clearance and are wide enough so that users can move over to allow other users to pass. Combined use trails may be unpaved fire protection roads or paved trails specifically designed for multiple use.

Shared Roadway: Streets with no designation or features for bicycles. Most cycling now occurs on streets with no accommodations for bicyclists. Some streets may be fully adequate for safe and efficient bicycle travel. Special signs or pavement striping may be unnecessary. Other streets may be inherently unsafe for bicycles. It would be inappropriate to designate such streets for bikeways regardless of roadway conditions.

Most rural highways are used by touring cyclists for inter-city and recreational travel. In most cases, it would be inappropriate to currently designate highways as bikeways because of limited use and the lack of continuity with other bike routes. However, the development and maintenance of paved roadway shoulders at least four feet wide with a standard lane stripe could improve the safety and convenience for bicyclists and motorists along such routes.

Although separate bicycle paths are built for exclusive bicycle and/or pedestrian use, their existence does not preclude bicycle use of any parallel roads, except freeways. Bicycles are permitted by right to use any road except freeways. In turn, cyclists are required to obey the rules of the road, the same as other vehicle drivers. (Note: the portion of Highway 101 north of Atherton Avenue in Novato is considered an expressway, not a freeway. Bicycles are permitted on this portion of Highway 101).

VI. LOCATION CRITERIA FOR BIKEWAYS

Cyclists have many of the same destinations as motorists. An ideal system would provide equal access throughout the street network. At the neighborhood level, the local street network is the bicycle network. Whenever feasible, maintenance and upgrading of streets should provide adequate width for shared use. Such upgrading is a basic element of bicycle system improvements. The following criteria are used to select which routes to provide for bicycle system improvements, given limited financial resources.

> **Trip Demand:** Routes should be located where a significant number of trips by bicycle take place or would be expected to take place. Existing trip demand can be estimated through observation or, when possible, through a bicycle traffic counting program. Potential high trip demand would be expected in corridors connecting major residential areas, employment centers, schools, shopping centers, parks and recreation centers.

Last, automobile traffic counts or corridors serve to indicate potential demand for bicycle trips.

Safety: Routes with significant safety hazards should be given high priority for improvements. In addition to cycling safety risks they represent, these hazards may limit the use of a route which would otherwise be an important resource to the bikeway system.

Continuity: The bikeway system should provide a comprehensive network connecting major activity centers. In most cases the major arterials for motorists represent the most direct connections between these centers. Bikeway routes which share arterials or provide a reasonable alternate route and connections to other transportation modes should be given high priority.

Efficiency: In considering alternate routes serving the same corridor, routes which can make use of existing resources (e.g. unpaved shoulders in a public right-of-way) should be given priority.

User Support: Local participation in proposing and supporting development of a particular route should be considered in route priorities.

Recreational Value: Routes with high recreational and scenic value should be signed and improved to Class II standards or better whenever possible.

Funding Feasibility: Other considerations being equal, priority should be given to projects which are eligible for and likely to receive funding support.

VII. INTEGRATING BICYCLES INTO THE TRANSPORTATION SYSTEM

The primary means of integrating bicycles into the transportation system are continued construction of bikeways and including bicycles in a transportation system management program. Integrating bicycles into the transportation system requires that cyclists have access to all parts of the county. A bikeway system linking residential neighborhoods, employments centers, shopping areas, schools, and recreational facilities should be completed. To this end the County should create a Bicycle Policy Map to highlight where improvements for a comprehensive system need to be made. The Policy Map would provide guidance for allocating funding and setting priorities.

A second means of integrating bicycles into the transportation system is to include a bicycle component in a Transportation Systems Management (TSM) Plan. Transportation Systems Management is a collection of activities designed to improve the operating efficiency of a transportation system without making large capital investments. The usual focus of TSM efforts is to reduce the number of vehicles on the roads during the hours of greatest traffic congestion and improve the flow of vehicles on the roads. Means to accomplish these objectives include offering options for alternate modes such as transit, carpools, and bicycles to reduce the number of automobiles driven by only one person. If people choose a mode other than driving alone, that will reduce traffic congestion.

In its first attempt to address Transportation System Management, the County created a TSM Task Force, representing many community interests. In 1989, after two years of study, the TSM Task Force wrote a "white paper" describing a proposed countywide TSM program accompanied by a proposed countywide ordinance. There were no specific programs or implementation measures for bicycles. In the proposed ordinance under the section "Definitions", "Commute Alternatives Program" included in its definition "... travel allowances for bicyclists and pedestrians, on-site paths, parking and showers and lockers for bicyclists and pedestrians..." The final TSM program should be expanded to include more specific requirements for facilitating bicycle use. The program should require employers to accommodate bicyclists by providing secure storage facilities for bicycles plus showers and lockers for bicyclists. Schools should be required to implement bicycle programs for students and employees.

For new developments, the County should require developers to allocate land and/or improvements for bikeways linking the new site to a system of bikeways. Analogous policies have been successfully implemented for open space and trails. In order to integrate bicycle accommodations into new projects, the County would need a policy map showing potential bikeways and priorities for improvements, including a scheduled funding program. This map could be used to obtain easements or improvements to complete a bikeway system similar to the trails system. To require developers to provide bicycle user facilities in their projects, e.g. weatherproof storage facilities, showers, etc., the County would need an ordinance documenting the need for such facilities to achieve a public interest such as insuring mobility for all citizens. The proposed TSM ordinance could be such a vehicle for integrating bicycles into an overall transportation program.

Proposition 111, passed by California voters in June of 1990, activates Assembly Bill 1791. This bill requires local governments to create Congestion Management Programs (CMPs). Among the provisions of this bill is a requirement for some Transportation System Management program. The County could adopt the program proposed by the TSM Task Force, but would have to come up with funding to implement it. Because the revenues from Proposition 111 are to be used for road maintenance, bikeways could only be built as shoulders to roads and not marked as bike paths *per se*.